

SEQUENCE LISTING

#5

<110> Weber, Bernard H.F.
Stoehr, Heidi

<120> Novel retina-specific human proteins C7orf9, C12orf7, MPP4 and F379

<130> 033488-001

<140> US 09/995,793

<141> 2001-11-29

<150> 60/253,751

<151> 2000-11-29

<160> 71

<170> PatentIn version 3.1

<210> 1

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<212> DNA

<213> Homo sapiens

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<223> artificial sequence, Translation start at 209; stop at 2435



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<213> Homo sapiens
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<220>
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 <223> genomic DNA, Exon from 165 to 286

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 agatttttta aaatttttat aatgtatcct tttccatgaa ccaggtagtg gagttattac 180
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 acggttactg accaacagat tgta 384

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 <212> DNA
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<220>
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 <223> genomic DNA, Exon from 162 to 247

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<210> 10
 <211> 384
 <212> DNA
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 <211> 448
 <212> DNA
 <213> Homo sapiens

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 <223> genomic DNA, Exon from 138 to 334

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 gaggtggcc atgccacatg 320

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 <223> genomic DNA, Exon from 161 to 178

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<213> Homo sapiens

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<220>
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ttgttgttta tggttttccc

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<212> DNA

<213> Homo sapiens

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<223> genomic DNA, Exon from 170 to 211

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<213> Homo sapiens

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<210> 19

<211> 384

<212> DNA

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<223> genomic DNA, Exon from 160 to 240

<400> 19

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<210> 20

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<223> genomic DNA, Exon from 164 to 298

<400> 22

agctacttgg	gaggctgaga	tgggtggatc	gtttgagcct	gggaagctga	ggctacagtg	60
aactgtgatt	gcaccacagc	actccagcct	gggtgacaga	gcaagaccat	gtctcaaaac	120
aaaacaaaca	aaaaataaat	gtgcatttaa	attttctgtg	taggatattc	aaggggttcg	180
aacccatgaa	ctgaagccct	atgtcatatt	tataaagcca	tcgaatatga	ggtgtatgaa	240
acaatctcgg	aaaaatgcc	aggttattac	tgactactat	gtggacatga	agttcaaggt	300
aagagcaagt	caaaaactac	tgtattgctt	tcagtggcct	ctgcgtggga	gagatctggg	360
ttgggctggg	ccaaggatct	ctgatctcat	tgctcctctc	ctcctttttg	acccctctc	420
caaaaggccc	tcaataaaat	ggtttact				448

<210> 23

<211> 704

<212> DNA

<213> Homo sapiens

<220>
 <221> misc_feature
 <223> genomic DNA, Exon from 197 to 704

<400> 23
 ttttctagtt tgctgggttt gtagaatttt gaaaaaatat ttttgaaact ttattgaaaa 60
 tcatctgtgc aaaattttcg gaccttactg tttttataca tagtttcaca actgaatgtg 120
 acagcataac aaactgtatt ttttccattt gtccaattaa gtctgtacta tccatatttt 180
 tctattttctc ctaaaggatg aagacctaca agagatggaa aatttagccc aaagaatgga 240
 aactcagttt ggccaatttt ttgatcatgt gattgtgaat gacagcttgc acgatgcatg 300
 tgcccagttg ttgtctgcca tacagaaggc tcaggaggag cctcagtggg taccagcaac 360
 atggatttcc tcagatactg agtctcaatg agacttcttg tttaatgctg gagttttaac 420
 actgtaccct tgatacagcg atccatagtt gcaatctaaa acaacagtat ttgaccatt 480
 ttaatgtgta caactttaaa agtgcagcaa tttattaatt aatcttattt gaaaaaaatt 540
 tttattgtat ggttatgtgg ttacctattt taacttaatt ttttttcctt tacctcatat 600
 gcagctgtgg tagaaatatg aataatgta agtcactgag tatgagaacc tttcgcatat 660
 ttcacatgat ctttttaaga tttaaataaa gagctttcct aaat 704

<210> 24
 <211> 637
 <212> PRT
 <213> Homo sapiens

<400> 24
 Met Ile Gln Ser Asp Lys Gly Ala Asp Pro Pro Asp Lys Lys Asp Met
 1 5 10 15
 Lys Leu Ser Thr Ala Thr Asn Pro Gln Asn Gly Leu Ser Gln Ile Leu
 20 25 30
 Arg Leu Val Leu Gln Glu Leu Ser Leu Phe Tyr Ser Arg Asp Val Asn
 35 40 45
 Gly Val Cys Leu Leu Tyr Asp Leu Leu His Ser Pro Trp Leu Gln Ala
 50 55 60
 Leu Leu Lys Ile Tyr Asp Cys Leu Gln Glu Phe Lys Glu Lys Lys Leu
 65 70 75 80
 Val Pro Ala Thr Pro His Ala Gln Val Leu Ser Tyr Glu Val Val Glu
 85 90 95
 Leu Leu Arg Glu Thr Pro Thr Ser Pro Glu Ile Gln Glu Leu Arg Gln
 100 105 110
 Met Leu Gln Ala Pro His Phe Lys Ala Leu Leu Ser Ala His Asp Thr
 115 120 125
 Ile Ala Gln Lys Asp Phe Glu Pro Leu Leu Pro Pro Leu Pro Asp Asn
 130 135 140
 Ile Pro Glu Ser Glu Glu Ala Met Arg Ile Val Cys Leu Val Lys Asn
 145 150 155 160
 Gln Gln Pro Leu Gly Ala Thr Ile Lys Arg His Glu Met Thr Gly Asp
 165 170 175
 Ile Leu Val Ala Arg Ile Ile His Gly Gly Leu Ala Glu Arg Ser Gly
 180 185 190
 Leu Leu Tyr Ala Gly Asp Lys Leu Val Glu Val Asn Gly Val Ser Val
 195 200 205
 Glu Gly Leu Asp Pro Glu Gln Val Ile His Ile Leu Ala Met Ser Arg
 210 215 220
 Gly Thr Ile Met Phe Lys Val Val Pro Val Ser Asp Pro Pro Val Asn
 225 230 235 240
 Ser Gln Gln Met Val Tyr Val Arg Ala Met Thr Glu Tyr Trp Pro Gln
 245 250 255
 Glu Asp Pro Asp Ile Pro Cys Met Asp Ala Gly Leu Pro Phe Gln Lys
 260 265 270

Gly Asp Ile Leu Gln Ile Val Asp Gln Asn Asp Ala Leu Trp Trp Gln
 275 280 285
 Ala Arg Lys Ile Ser Asp Pro Ala Thr Cys Ala Gly Leu Val Pro Ser
 290 295 300
 Asn His Leu Leu Lys Arg Lys Gln Arg Glu Phe Trp Trp Ser Gln Pro
 305 310 315 320
 Tyr Gln Pro His Thr Cys Leu Lys Ser Thr Leu Ser Ile Ser Met Glu
 325 330 335
 Glu Glu Asp Asp Met Lys Ile Asp Glu Lys Cys Val Glu Ala Asp Glu
 340 345 350
 Glu Thr Phe Glu Ser Glu Glu Leu Ser Glu Asp Lys Glu Glu Phe Val
 355 360 365
 Gly Tyr Gly Gln Lys Phe Phe Ile Ala Gly Phe Arg Arg Ser Met Arg
 370 375 380
 Leu Cys Arg Arg Lys Ser His Leu Ser Pro Leu His Ala Ser Val Cys
 385 390 395 400
 Cys Thr Gly Ser Cys Tyr Ser Ala Val Gly Ala Pro Tyr Glu Glu Val
 405 410 415
 Val Arg Tyr Gln Arg Arg Pro Ser Asp Lys Tyr Arg Leu Ile Val Leu
 420 425 430
 Met Gly Pro Ser Gly Val Gly Val Asn Glu Leu Arg Arg Gln Leu Ile
 435 440 445
 Glu Phe Asn Pro Ser His Phe Gln Ser Ala Val Pro His Thr Thr Arg
 450 455 460
 Thr Lys Lys Ser Tyr Glu Met Asn Gly Arg Glu Tyr His Tyr Val Ser
 465 470 475 480
 Lys Glu Thr Phe Glu Asn Leu Ile Tyr Ser His Arg Met Leu Glu Tyr
 485 490 495
 Gly Glu Tyr Lys Gly His Leu Tyr Gly Thr Ser Val Asp Ala Val Gln
 500 505 510
 Thr Val Leu Val Glu Gly Lys Ile Cys Val Met Asp Leu Glu Pro Gln
 515 520 525
 Asp Ile Gln Gly Val Arg Thr His Glu Leu Lys Pro Tyr Val Ile Phe
 530 535 540
 Ile Lys Pro Ser Asn Met Arg Cys Met Lys Gln Ser Arg Lys Asn Ala
 545 550 555 560
 Lys Val Ile Thr Asp Tyr Tyr Val Asp Met Lys Phe Lys Asp Glu Asp
 565 570 575
 Leu Gln Glu Met Glu Asn Leu Ala Gln Arg Met Glu Thr Gln Phe Gly
 580 585 590
 Gln Phe Phe Asp His Val Ile Val Asn Asp Ser Leu His Asp Ala Cys
 595 600 605
 Ala Gln Leu Leu Ser Ala Ile Gln Lys Ala Gln Glu Glu Pro Gln Trp
 610 615 620
 Val Pro Ala Thr Trp Ile Ser Ser Asp Thr Glu Ser Gln
 625 630 635

<210> 25
 <211> 1190
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <223> artificial sequence, Translation start at 48, stop at 638

<400> 25

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ataaacattg ggctgcacat agagacttaa ttttagattt agacaaaatg gaaattatatt 60
catcaaaact attcatttta ttgacttttag ccacttcaag cttgttaaca tcaaacattt 120
tttgtgcaga tgaattagtg atstccaatc ttcacagcaa agaaaattat gacaaatatt 180
ctgagcctag aggataccca aaaggggaaa gaagcctcaa ttttgaggaa ttaaaaagatt 240
ggggaccaaa aaatgttatt aagatgagta cacctgcagt caataaaatg ccacactcct 300
tcgccaactt gccattgaga tttgggagga acgttcaaga agaaaagaat gctggagcaa 360
cagccaacct gcctctgaga tctggaagaa atatggaggt gagcctcgtg agacgtgttc 420
ctaacctgcc ccaaagggtt gggagaacaa caacagccaa aagtgtctgc aggatgctga 480
gtgattttgt tcaaggatcc atgcattcac catgtgccaa tgacttattt tactccatga 540
cctgccagca ccaagaaatc cagaatcccg atcaaaaaca gtcaaggaga ctgctattca 600
agaaaataga tgatgcagaa ttgaaacaag aaaaataaga aacctggagc ctgtccctaa 660
agctgtggcc tgtaatctac aaatggctct atagcgaaga ccacacggaa gagtagctac 720
atacacttca tcagctatgg atcatcaacg gcaatttttc cttgtcagta cagctataat 780
agtatcttga aagttgtaaa aaaattaaag catatttggt acgtaaagt aaatgatatt 840
ttgtctgaat aaaaaaaaaa cattgcaaat gctttagaaa tctctgataa tggagagaga 900
gacagaggac cctcctcact accctatata aaaatcattg gcacagttac acttaataaa 960
aaaaattaaa cagaagagca ccctgaaaaa cattatgatg gaaattaaat agtatgccag 1020
aataacatgg ttgacaaata agtgaacaag gattaaaaat cacttacaaa cgtgtttctg 1080
tacacccttt ctatcgtgtc aaatgttaat gaatctgtga tcaattgaaa tgtaaatgtc 1140
tgtgtaaaac taaaaaataa aaactcttag actttaggga gaaaagaaaa 1190

```

<210> 26
 <211> 256
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <223> genomic DNA, Exon from 1 to 185

```

<400> 26
ataaacattg ggctgcacat agagacttaa ttttagattt agacaaaatg gaaattatatt 60
catcaaaact attcatttta ttgacttttag ccacttcaag cttgttaaca tcaaacattt 120
tttgtgcaga tgaattagtg atstccaatc ttcacagcaa agaaaattat gacaaatatt 180
ctgaggtaag ttttttaaat ctctctaatt tgagtagcat taattacata atattaatcc 240
taagtctaatt gatttt 256

```

<210> 27
 <211> 512
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <223> genomic DNA, Exon from 62 to 462

```

<400> 27
gggttttaaat ctgttgctta taacaacagt atgttattgt aatggtcatt tctaattata 60
gcctagagga taccctaaaag gggaaagaag cctcaatttt gaggaattaa aagattgggg 120
acaaaaaaat gttattaaga tgagtacacc tgcagtcaat aaaatgccac actccttcgc 180
caacttgcca ttgagatttg ggaggaacgt tcaagaagaa agaagtgtct gagcaacagc 240
caacctgcct ctgagatctg gaagaaatat ggaggtgagc ctctgagac gtgttcctaa 300
cctgcccaca aggtttggga gaacaacaac agccaaaagt gtctgcagga tgctgagtga 360
tttgtgtcaa ggatccatgc attcaccatg tgccaatgac ttattttact ccatgacctg 420
ccagcaccaa gaaatccaga atcccgatca aaaacagtca aggtaaatac ctggaaacca 480
gtcaaagtgc atgggcagtt atatagaggt gg 512

```

<210> 28
 <211> 768
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <223> genomic DNA, Exon from 115 to 718

<400> 28
 acacaattca actcaagtat aattaggcag ttaggactat ggcttgtatt tgtatacaca 60
 cttgcatgct gttgttctga tgggtgacaa cattttatac tgcttacatt ttaggagact 120
 gctattcaag aaaatagatg atgcagaatt gaaacaagaa aaataagaaa cctggagcct 180
 gtccttaaag ctgtggcctg taatctacaa atggctctat agcgaagacc acacggaaga 240
 gtagctacat acacttcac agctatggat catcaacggc aatttttcct tgtcagtaca 300
 gctataatag tatcttgaag gttgtaaaaa aattaaagca tatttggtac gtaaagttaa 360
 aatgattttt gtctgaataa aaaaaaagca ttgcaaagc tttagaaatc tctgataatg 420
 gagagagaga cagaggaccc tcctcactac cctatataaa aatcattggc acagttacac 480
 ttaataaaaa aaattaaaca gaagagcacc ctgaaaaaca ttatgatgga aattaaatag 540
 tatgccagaa taacatggtt gacaaataag tgaacaagga ttaaaaaatca cttacaaacg 600
 tgtttctgta caccctttct atcgtgtcaa atgttaatga atctgtgatc aattgaaatg 660
 taaatgtctg tgtaaaacta caaaataaaa actcttagac ttagggaga aaagaaaaag 720
 gcaactatga gttacctctt ttagtgtctc ctctatctac atccagaa 768

<210> 29
 <211> 196
 <212> PRT
 <213> Homo sapiens

<400> 29
 Met Glu Ile Ile Ser Ser Lys Leu Phe Ile Leu Leu Thr Leu Ala Thr
 1 5 10 15
 Ser Ser Leu Leu Thr Ser Asn Ile Phe Cys Ala Asp Glu Leu Val Ile
 20 25 30
 Ser Asn Leu His Ser Lys Glu Asn Tyr Asp Lys Tyr Ser Glu Pro Arg
 35 40 45
 Gly Tyr Pro Lys Gly Glu Arg Ser Leu Asn Phe Glu Glu Leu Lys Asp
 50 55 60
 Trp Gly Pro Lys Asn Val Ile Lys Met Ser Thr Pro Ala Val Asn Lys
 65 70 75 80
 Met Pro His Ser Phe Ala Asn Leu Pro Leu Arg Phe Gly Arg Asn Val
 85 90 95
 Gln Glu Glu Arg Ser Ala Gly Ala Thr Ala Asn Leu Pro Leu Arg Ser
 100 105 110
 Gly Arg Asn Met Glu Val Ser Leu Val Arg Arg Val Pro Asn Leu Pro
 115 120 125
 Gln Arg Phe Gly Arg Thr Thr Thr Ala Lys Ser Val Cys Arg Met Leu
 130 135 140
 Ser Asp Leu Cys Gln Gly Ser Met His Ser Pro Cys Ala Asn Asp Leu
 145 150 155 160
 Phe Tyr Ser Met Thr Cys Gln His Gln Glu Ile Gln Asn Pro Asp Gln
 165 170 175
 Lys Gln Ser Arg Arg Leu Leu Phe Lys Lys Ile Asp Asp Ala Glu Leu
 180 185 190
 Lys Gln Glu Lys
 195

<210> 30
 <211> 1188
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <223> artificial sequence, Translation start at 347, stop at 604

<400> 30
 acacacaacg gggtttcggg gctgtggacc ctgtgccagg aaaggaaggg cgcagctcct 60
 gcaatgcgga gcagccaggg cagtgggcac caggctttag cctccctttc tcaccctaca 120
 gagggcaggc ccttcagctc cattctcctc caaggctgca gagggggcag gaattggggg 180
 tgacaggaga gctgtaaggt ctccagtggg tcattctggg cccagagatg ggtgctgaag 240
 ctcccacgcc tgccctgtgaa aatggagtcc tctctcacct gggagagcca ggtgctgccc 300
 cgagaaggat gcatttatgg cttcrtgaag tctttcctga cccccgatgc tgctgactat 360
 agagacaaaag tctcactatg ttgctcaggc tggctctgaa ctccctggcct caagcgatcc 420
 tcccacctya gcctcccaaa gwgttgggat tatagacatg agccactgca cctggccgac 480
 cttgggcaag ttcttaaacc cttcaaagcc tcatttttct ccaatcayaa aagggaaga 540
 tggtaatatt ttccccwcca aattcttgct ggatgcctc acagaattga gattatgtac 600
 gtaaacacc aggtgcctaa cccggcacag agcaggaggg ctaagcgtga catccagcac 660
 gtggtcagtg gaatccagta ttcctaccca cctctctagt ctcccctcca cccctctccc 720
 tttcagaggc accaagctgc ttgtggtctt gtctattccc actccctgcc tgactgaaca 780
 ttttctccac ctccctgatca tcagcagcag aaactggctg ctcttcctcc tgggtagaca 840
 gccagactgt atttcccagc tgcccctgca gtgagatgtg gccatcggag ccagcattgg 900
 ccaatggact ctgcatggga gtgacgcatg cwgcctccag gcttgtccct aaaacctccc 960
 acgtgtcctc sgccctgctt tcccacytcc aaggagcacg gcaattgtgg aagaccaga 1020
 ttagtgatgg cagaaccata gatgggagga acctgggtcc ctgacttaaa gtatcatgga 1080
 tttgatgtt cccttagtga gaaataaact tccattgtgt ttaagccttt atttgtttat 1140
 agttggttac agcaactgcc ttcttttaat taaaacactc ctgctgct 1188

<210> 31
 <211> 85
 <212> PRT
 <213> Homo sapiens

<400> 31
 Met Leu Leu Thr Ile Glu Thr Lys Ser His Tyr Val Ala Gln Ala Gly
 1 5 10 15
 Leu Glu Leu Leu Ala Ser Ser Asp Pro Pro Thr Ser Ala Ser Gln Ser
 20 25 30
 Val Gly Ile Ile Asp Met Ser His Cys Thr Trp Pro Thr Leu Gly Lys
 35 40 45
 Phe Leu Asn Pro Ser Lys Pro His Phe Ser Pro Ile Thr Lys Gly Lys
 50 55 60
 Asp Gly Asn Ile Phe Pro Thr Lys Phe Leu Ser Asp Ala Leu Thr Glu
 65 70 75 80
 Leu Arg Leu Cys Thr
 85

<210> 32
 <211> 560
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <223> genomic DNA, Exon from 101 to 460

```

<400> 32
tatatgggaa tgagccagct gcaccgctgc tgacagtggc tgggataatc ctccctgagc 60
tggtccaagg attagtctgt ctgccctgtg cccagctccc acacaacggg gtttcggggc 120
tgtggaccct gtgccaggaa aggaagggcg cagctcctgc aatgcggagc agccagggca 180
gtgggcacca ggcttttagcc tccctttctc accctacaga gggcaggccc ttcagctcca 240
ttctcctcca aggctgcaga gggggcagga attgggggtg acaggagagc tgtaagggtc 300
ccagtgggtc attctgggcc cagagatggg tgctgaagct cccacgcctg cctgtgaaaa 360
tggagtcttc tctcacctgg gagagccagg tgctgccccg agaaggatgc atttatggct 420
tcatgaagtc tttcctgacc cccgatgctg ctgactatag gtaagtctga gcaaactctg 480
gggagcctca tcttggcatg agaaagagat ggcttcttct aagcccactg gccgtgatcc 540
caggattata acacattctg
560

```

```

<210> 33
<211> 405
<212> DNA
<213> Homo sapiens

```

```

<220>
<221> misc_feature
<223> genomic DNA, Exon from 101 to 305

```

```

<400> 33
catgagaggt agtataatat agaggatatg tgtgcttact aagaggctgc ctgtctgacc 60
ttggacaagt tctttttatt tattttattha ttttttatag agacaaagtc tcactatggt 120
gtcaggctgt gtcttgaact cctggcctca agcgatcctc ccaccttagc ctcccaaaga 180
gttgggatta tagacatgag ccactgcacc tggccgacct tgggcaagtt cttaaaccct 240
tcaaagcctc atttttctcc aatcataaaa gggaaagatg gtaatathtt cccctccaaa 300
ttcttgtaag tattaacat tgtatatgta ttttgaacac gattaagctc taaacacttg 360
ttaggaagca ggagtagcat ttgaaacaaa cagctctttt cccac
405

```

```

<210> 34
<211> 821
<212> DNA
<213> Homo sapiens

```

```

<220>
<221> misc_feature
<223> genomic DNA, Exon from 101 to 721

```

```

<400> 34
aagtattaaa cattgtatat gtattttgaa caggattaag ctctaaacac ttgttaggaa 60
gcaggagtag catttgaaac aaacagctct tttccacag gtcggatgcc ctcacagaat 120
tgagattatg tacgtaaaac accagggtgc taaccgggca cagagcagga gggctaagcg 180
tgacatccag cacgtgggtc gtggaatcca gtattcctac ccacctctct agtctccctt 240
ccacccctct ccctttcaga ggcaccaagc tgcttgtggt cttgtctatt cccactccct 300
gcctgactga acattttctc cacctcctga tcatcagcag cagaaactgg ctgctcttcc 360
tcctgggtag acagccagac tgtatttccc agctgcccct gcagtgagat gtggccatcg 420
gagccagcat tggccaatgg actctgcatg ggagtgcgc atgctgcctc caggcttgctc 480
cctaaaacct cccacgtgtc ctccgcctgc tcttcccact tccaaggagc acggcaattg 540
tggaagaccc agattagtga tggcagaacc atagatggga ggaacctggg tccctgactt 600
aaagtatcat ggatttggat gttcccttag tgagaaataa acttccattg tgtttaagcc 660
tttatttgtt tatagttggt tacagcaact gccttctttt aattaaaaca ctctgctgc 720
ttcatgttgc tggaatgctt gtaaccctgc cctgcttcac cagggttaact cctacttggc 780
ctttaagttt atctctgctg tcacaccgtc cagaaagcct t
821

```

```

<210> 35
<211> 1514

```

<212> DNA
 <213> Homo sapiens

<220>

<221> misc_feature

<223> artificial sequence, Translation start at 155, stop at 1192

<400> 35

gaaagtccag	ccatctgtta	cctgcgttgc	ttcctggggr	gggatagtc	acctggaggc	60
attcggagac	ccagtgattg	tgctccgygg	agcctgggct	gtgccccgcg	ttgactgcct	120
catagatacc	ctacgaaccc	caaatgccag	ctgcatgaga	aaagggactc	accttctggt	180
tccctgcctg	gaagaggaag	agctggcatt	gcacaggaga	cggctggaca	tgtctgaggc	240
actgccctgc	ccgggcaagg	agacccccac	cccaggctgc	aggctggggg	ccctgtattg	300
ggcctgtgtc	cacaatgatc	ccaccagct	ccaagccata	ctggatggtg	gggtctcccc	360
agaggaggcc	accaggtgg	acagcaatgg	gaggacaggc	ctcatggtcg	catgctacca	420
cggcttccag	agtgttgtgg	ccctgctcag	ccactgtcct	ttccttgatg	tgaaccagca	480
ggacaaagga	ggggacacgg	ccctcatgtt	ggctgcccaa	gcaggccacg	tgctctagt	540
gagtctcctg	ctcaactact	atgtgggcct	ggacctggaa	cgccgggacc	agcgggggct	600
cacggcggtta	atgaaggctg	ccatgcgga	ccgctgtgct	gacctgacag	cagtggaccc	660
tggttcggggc	aagacggccc	tggaatgggc	agtgtgac	gacagcttcg	acaccgtgtg	720
gaggattcgg	cagctgctga	ggcggcccc	agtggagcag	cttagccagc	actacaagcc	780
cgagtggccg	gccttgtccg	ggctcgtggc	ccaggcccag	gcccaggccc	aggttgcccc	840
ttcactccta	gaacggctgc	aggctacctt	gagcctcccc	tttgccccgt	ctcctcagga	900
ggggggtgtt	ctggaccacc	ttgtgactgc	cacaaccagc	ctggccagtc	ccttcgtcac	960
cactgcctgc	cacactctgt	gccctgacca	tccaccttcg	ctgggcaccc	gaagcaagtc	1020
cgtgccagag	ctgttagtgc	cagccgaagc	ccagtccttc	aggacaccaa	agtctggccc	1080
ttcctctctg	gcgataccag	gagctcagga	tagagaagag	gaaacaggag	gaggaggcca	1140
gaatggcaca	gaagtggggg	aagatgggat	aggacaggct	gggaacaggt	aatcaggccc	1200
ctcccagggc	ttctttcccc	tctggagtgc	ctccggcctc	cccatccacc	tctgcctaag	1260
taaatctgct	ctcaacctat	atatatacaa	ggtcattcat	tctagcattg	tttgcaagag	1320
tgaaagagtg	gaaacacccg	aagtgtccat	cagtaaggga	caggctagat	tgattacgga	1380
tgtaattgct	gtccatccat	acagagcata	ctctacagtg	tattctaaaa	taagactaag	1440
gaagctgttt	atattctgat	atgaaactac	catcaagatg	tataaagtaa	aaataactaa	1500
ggagtggaac	agtg					1514

<210> 36
 <211> 1544
 <212> DNA
 <213> Homo sapiens

<220>

<221> misc_feature

<223> artificial sequence, Translation start at 155, stop at 1222

<400> 36

gaaagtccag	ccatctgtta	cctgcgttgc	ttcctggggr	gggatagtc	acctggaggc	60
attcggagac	ccagtgattg	tgctccgygg	agcctgggct	gtgccccgcg	ttgactgcct	120
catagatacc	ctacgaaccc	caaatgccag	ctgcatgaga	aaagggactc	accttctggt	180
tccctgcctg	gaagaggaag	agctggcatt	gcacaggaga	cggctggaca	tgtctgaggc	240
actgccctgc	ccgggcaagg	agacccccac	cccaggctgc	aggctggggg	ccctgtattg	300
ggcctgtgtc	cacaatgatc	ccaccagct	ccaagccata	ctggatggtg	gggtctcccc	360
agaggaggcc	accaggtgg	acagcaatgg	gaggacaggc	ctcatggtcg	catgctacca	420
cggcttccag	agtgttgtgg	ccctgctcag	ccactgtcct	ttccttgatg	tgaaccagca	480
ggacaaagga	ggggacacgg	ccctcatgtt	ggctgcccaa	gcaggccacg	tgctctagt	540
gagtctcctg	ctcaactact	atgtgggcct	ggacctggaa	cgccgggacc	agcgggggct	600
cacggcggtta	atgaaggctg	ccatgcgga	ccgctgtgag	tgctgggcca	ccctcctcat	660
ggcaggtgct	gacctgacag	cagtggaccc	tgctcggggc	aagacggccc	tggaatgggc	720
agtgtgac	gacagcttcg	acaccgtgtg	gaggattcgg	cagctgctga	ggcggcccc	780

```

agtggagcag cttagccagc actacaagcc cgagtggccg gccttgtccg ggctcgtggc 840
ccaggccccag gccaggcccc aggttgcccc ttcactccta gaacggctgc aggctacctt 900
gagcctcccc tttgccccgt ctccctcagga ggggggtgtt ctggaccacc ttgtgactgc 960
cacaaccagc ctggccagtc ccttcgtcac cactgcctgc cacactctgt gccctgacca 1020
tccaccttcg ctgggcaccc gaagcaagtc cgtgccagag ctgttagtgc cagccgaagc 1080
ccagtccttc aggacaccaa agtctggccc ttctctctg gcgataccag gagctcagga 1140
tagagaagag gaaacaggag gaggaggcca gaatggcaca gaagtagggg aagatgggat 1200
aggacaggct gggaacagggt aatcaggccc ctcccagggc ttctttcccc tctggagtgc 1260
ctccggcctc cccatccacc tctgcctaag taaatctgct ctcaacctat atatatacaa 1320
ggtcattcat tctagcattg tttgcaagag tgaaagagt gaaacacccg aagtgtccat 1380
cagtaaggga caggctagat tgattacgga tgtaattgct gtccatccat acagagcata 1440
ctctacagtg tattctaaaa taagactaag gaagctgttt atattctgat atgaaactac 1500
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<210> 37
<211> 345
<212> PRT
<213> Homo sapiens

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<400> 37
Met Arg Lys Gly Thr His Leu Leu Val Pro Cys Leu Glu Glu Glu Glu
1      5      10      15
Leu Ala Leu His Arg Arg Arg Leu Asp Met Ser Glu Ala Leu Pro Cys
20     25     30
Pro Gly Lys Glu Thr Pro Thr Pro Gly Cys Arg Leu Gly Ala Leu Tyr
35     40     45
Trp Ala Cys Val His Asn Asp Pro Thr Gln Leu Gln Ala Ile Leu Asp
50     55     60
Gly Gly Val Ser Pro Glu Glu Ala Thr Gln Val Asp Ser Asn Gly Arg
65     70     75     80
Thr Gly Leu Met Val Ala Cys Tyr His Gly Phe Gln Ser Val Val Ala
85     90     95
Leu Leu Ser His Cys Pro Phe Leu Asp Val Asn Gln Gln Asp Lys Gly
100    105    110
Gly Asp Thr Ala Leu Met Leu Ala Ala Gln Ala Gly His Val Pro Leu
115    120    125
Val Ser Leu Leu Leu Asn Tyr Tyr Val Gly Leu Asp Leu Glu Arg Arg
130    135    140
Asp Gln Arg Gly Leu Thr Ala Leu Met Lys Ala Ala Met Arg Asn Arg
145    150    155    160
Cys Ala Asp Leu Thr Ala Val Asp Pro Val Arg Gly Lys Thr Ala Leu
165    170    175
Glu Trp Ala Val Leu Thr Asp Ser Phe Asp Thr Val Trp Arg Ile Arg
180    185    190
Gln Leu Leu Arg Arg Pro Gln Val Glu Gln Leu Ser Gln His Tyr Lys
195    200    205
Pro Glu Trp Pro Ala Leu Ser Gly Leu Val Ala Gln Ala Gln Ala Gln
210    215    220
Ala Gln Val Ala Pro Ser Leu Leu Glu Arg Leu Gln Ala Thr Leu Ser
225    230    235    240
Leu Pro Phe Ala Pro Ser Pro Gln Glu Gly Gly Val Leu Asp His Leu
245    250    255
Val Thr Ala Thr Thr Ser Leu Ala Ser Pro Phe Val Thr Thr Ala Cys
260    265    270
His Thr Leu Cys Pro Asp His Pro Pro Ser Leu Gly Thr Arg Ser Lys
275    280    285
Ser Val Pro Glu Leu Leu Val Pro Ala Glu Ala Gln Ser Phe Arg Thr
290    295    300

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Pro Lys Ser Gly Pro Ser Ser Leu Ala Ile Pro Gly Ala Gln Asp Arg
 305 310 315 320
 Glu Glu Glu Thr Gly Gly Gly Gly Gln Asn Gly Thr Glu Val Gly Glu
 325 330 335
 Asp Gly Ile Gly Gln Ala Gly Asn Arg
 340 345

<210> 38
 <211> 355
 <212> PRT
 <213> Homo sapiens

<400> 38
 Met Arg Lys Gly Thr His Leu Leu Val Pro Cys Leu Glu Glu Glu Glu
 1 5 10 15
 Leu Ala Leu His Arg Arg Arg Leu Asp Met Ser Glu Ala Leu Pro Cys
 20 25 30
 Pro Gly Lys Glu Thr Pro Thr Pro Gly Cys Arg Leu Gly Ala Leu Tyr
 35 40 45
 Trp Ala Cys Val His Asn Asp Pro Thr Gln Leu Gln Ala Ile Leu Asp
 50 55 60
 Gly Gly Val Ser Pro Glu Glu Ala Thr Gln Val Asp Ser Asn Gly Arg
 65 70 75 80
 Thr Gly Leu Met Val Ala Cys Tyr His Gly Phe Gln Ser Val Val Ala
 85 90 95
 Leu Leu Ser His Cys Pro Phe Leu Asp Val Asn Gln Gln Asp Lys Gly
 100 105 110
 Gly Asp Thr Ala Leu Met Leu Ala Ala Gln Ala Gly His Val Pro Leu
 115 120 125
 Val Ser Leu Leu Leu Asn Tyr Tyr Val Gly Leu Asp Leu Glu Arg Arg
 130 135 140
 Asp Gln Arg Gly Leu Thr Ala Leu Met Lys Ala Ala Met Arg Asn Arg
 145 150 155 160
 Cys Glu Cys Val Ala Thr Leu Leu Met Ala Gly Ala Asp Leu Thr Ala
 165 170 175
 Val Asp Pro Val Arg Gly Lys Thr Ala Leu Glu Trp Ala Val Leu Thr
 180 185 190
 Asp Ser Phe Asp Thr Val Trp Arg Ile Arg Gln Leu Leu Arg Arg Pro
 195 200 205
 Gln Val Glu Gln Leu Ser Gln His Tyr Lys Pro Glu Trp Pro Ala Leu
 210 215 220
 Ser Gly Leu Val Ala Gln Ala Gln Ala Gln Val Ala Pro Ser
 225 230 235 240
 Leu Leu Glu Arg Leu Gln Ala Thr Leu Ser Leu Pro Phe Ala Pro Ser
 245 250 255
 Pro Gln Glu Gly Gly Val Leu Asp His Leu Val Thr Ala Thr Thr Ser
 260 265 270
 Leu Ala Ser Pro Phe Val Thr Thr Ala Cys His Thr Leu Cys Pro Asp
 275 280 285
 His Pro Pro Ser Leu Gly Thr Arg Ser Lys Ser Val Pro Glu Leu Leu
 290 295 300
 Val Pro Ala Glu Ala Gln Ser Phe Arg Thr Pro Lys Ser Gly Pro Ser
 305 310 315 320
 Ser Leu Ala Ile Pro Gly Ala Gln Asp Arg Glu Glu Glu Thr Gly Gly
 325 330 335
 Gly Gly Gln Asn Gly Thr Glu Val Gly Glu Asp Gly Ile Gly Gln Ala
 340 345 350
 Gly Asn Arg

355

<210> 39
 <211> 183
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <223> genomic DNA, Exon from 1 to 143

<400> 39
 gaaagtccag ccattctgtta cctgcgttgc ttctctgggr gggatagtcc acctggaggc 60
 attcggagac ccagtgtatt tgctccgygg agcctgggct gtgccccgcg ttgactgcct 120
 catagatacc ctacgaaccc caagtaagaa aaaacgacga ccctctctcc gtgagtctca 180
 ctg 183

<210> 40
 <211> 462
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <223> genomic DNA, Exon from 108 to 358

<400> 40
 gggataaatg ttttccttgg ggcaagggct gtgcacttgc cagctgctgg gtccccctccc 60
 taggatccag ggagacactc actactcctc tccattctgt gtttttagatg ccagctgcat 120
 gagaaaaggg actcaacctc tggttccctg cctggaagag gaagagctgg cattgcacag 180
 gagacggctg gacatgtctg aggcactgcc ctgcccgggc aaggagaccc ccaccccagg 240
 ctgcaggctg ggggccctgt attgggcctg tgtccacaat gatcccaccc agctccaagc 300
 catactggat ggtggggtct ccccagagga ggccacccag gtggacagca atgggagggt 360
 gagatgtcct ggcttccag aacagctggg ggcattcttg catccccacc acaccgtcct 420
 ggcttggtc cctgagaggg gttcaggggc aatacctcct gc 462

<210> 41
 <211> 308
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <223> genomic DNA, Exon from 89 to 218

<400> 41
 ctctgggaca gatattgggtt tagaggggtgc aaggggccct ggagtggccc agggggaaag 60
 caggggatct gagctgcccc tccctcagac aggcctcatg gtgcgatgct accacggctt 120
 ccagagtgtt gtggccctgc tcagccactg tcccttcctt gatgtgaacc agcaggacaa 180
 aggaggggac acggccctca tgttggtgc ccaagcagg gtgaggctgc tgcacccac 240
 ttccgacagc ccccttttga tgcagacagg gcctcagccc cacccttggt gcacgggtgtt 300
 ctacacca 308

<210> 42
 <211> 231
 <212> DNA
 <213> Homo sapiens

<220>

<221> misc_feature

<223> genomic DNA, Exon from 49 to 159

<400> 42

tcatacacc	ctttcctggg	gaccaagctt	acccttgctg	ccctgcaggc	cacgtgcctc	60
tagtgagtct	cctgctcaac	tactatgtgg	gcctggacct	ggaacgccgg	gaccagcggg	120
ggctcacggc	gttaatgaag	gctgccatgc	ggaaccgctg	tgagtgcgtg	gccaccctcc	180
tcatggcagg	tgtgcggggc	ctggaccggg	gtgtgtggcc	tccagtcctc	c	231

<210> 43

<211> 231

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<223> genomic DNA, Exon from 49 to 189

<400> 43

tcatacacc	ctttcctggg	gaccaagctt	acccttgctg	ccctgcaggc	cacgtgcctc	60
tagtgagtct	cctgctcaac	tactatgtgg	gcctggacct	ggaacgccgg	gaccagcggg	120
ggctcacggc	gttaatgaag	gctgccatgc	ggaaccgctg	tgagtgcgtg	gccaccctcc	180
tcatggcagg	tgtgcggggc	ctggaccggg	gtgtgtggcc	tccagtcctc	c	231

<210> 44

<211> 588

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<223> genomic DNA, Exon from 98 to 499

<400> 44

aatgtaacc	acatacgtct	tgctcctaaa	gaatctgccc	ttccacaaat	caccaacccc	60
tatcccgc	catgtcacc	cctgtgctcc	ttcccagggtg	ctgacctgac	agcagtggac	120
cctgttcggg	gcaagacggc	cctggaatgg	gcagtgcgtga	ccgacagctt	cgacaccgtg	180
tggaggattc	ggcagctgct	gaggcggccc	caagtggagc	agcttagcca	gcactacaag	240
cccaggtggc	cggccttgct	cgggctcgtg	gcccaggccc	aggcccaggc	ccaggttgcc	300
ccttcaactcc	tagaacggct	gcaggctacc	ttgagcctcc	cctttgcccc	gtctcctcag	360
gaggggggtg	ttctggacca	ccttgtgact	gccacaacca	gcctggccag	tcccttcgtc	420
accactgcct	gccacactct	gtgccctgac	cctccacctt	cgctggggac	ccgaagcaag	480
tccgtgccag	agctgttagg	tactgccccg	ccccctcccc	tggttccccca	gtccccgcca	540
gggagtcccc	agaggtcccc	gtgggtcttc	gtccccctacc	agagccct		588

<210> 45

<211> 503

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<223> genomic DNA, Exon from 27 to 503

<400> 45

ccaaggcatc	ctcatcctcc	caccagtgcc	agccgaagcc	cagtccttca	ggacaccaaa	60
gtctggccct	tcctctctgg	cgataaccagg	agctcaggat	agagaagagg	aaacaggagg	120

aggaggccag	aatggcacag	aagtagggga	agatgggata	ggacaggctg	ggaacaggta	180
atcaggcccc	tcccagggct	tctttcccct	ctggagtgcc	tccggcctcc	ccatccacct	240
ctgcctaagt	aaatctgctc	tcaacctata	tatatacaag	gtcattcatt	ctagcattgt	300
ttgcaagagt	gaaagagtgg	aaacacccga	agtgtccatc	agtaagggaac	aggctagatt	360
gattacggat	gtaattgctg	tccatccata	cagagcatat	tctacagtgt	attctaaaat	420
aagactaagg	aagctgttta	tattctgata	tgaaactacc	atcaagatgt	ataaagtaaa	480
aataactaag	gagtgaaca	gtg				503

<210> 46
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 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer

<400> 46	
ctcacatcct	tctcagcc
	18

<210> 47
 <211> 19
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer

<400> 47	
gtggaatgtc	agggaaatc
	19

<210> 48
 <211> 18
 <212> DNA
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<220>
 <223> primer

<400> 48	
tgactgcctc	caggaatt
	18

<210> 49
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer

<400> 49
ttacgaaatg aatgggcg

18

<210> 50
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 50
aggctctagg tccatgac

18

<210> 51
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 51
atgtgaaatc tgcgaaagg

19

<210> 52
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<220>
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<400> 52
cgtgccatga ctgagtac

18

<210> 53
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<220>
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<400> 53

aactgcagtg ggtaccag

18

<210> 54
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 54
tctgagccta gaggatacc

19

<210> 55
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
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<400> 55
gatctcagag gcaggttg

18

<210> 56
<211> 20
<212> DNA
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<220>
<223> primer

<400> 56
tgctgtgaag attggagatc

20

<210> 57
<211> 36
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<220>
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<220>
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<400> 57

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36

<210> 58

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 58

ggccacgcgt cgactagtac

20

<210> 59

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 59

agcttgaagt ggctaaagtc

20

<210> 60

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 60

tgatctcaa tcttcacagc

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<210> 61

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 61
tgtgccagga aaggaagg

18

<210> 62
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<400> 62
tagtcagcag catcggggg

19

<210> 63
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<220>
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<400> 63
agcaagttca gcctgggttaa g

21

<210> 64
<211> 18
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<220>
<223> primer

<400> 64
atgttcagtc aggcaggg

18

<210> 65
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<400> 65

ttcttgtcgg atgccctc

18

<210> 66
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<220>
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<400> 66
cggaaccgct gtgagtgc

18

<210> 67
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<220>
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<400> 67
taggcagagg tggatggg

18

<210> 68
<211> 18
<212> DNA
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<220>
<223> primer

<400> 68
ggccactcgg gcttgtag

18

<210> 69
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<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 69
gtgcaatgcc agctcttc

18

<210> 70
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 70
tgccaagctg ttagtgcc

18

<210> 71
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 71
catgctacca cggcttcc

18